



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| | | | | |
|-------------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/622,197 | 07/17/2003 | Barton James Jenson | 35026.001 | 3954 |
| EXAMINER | | | | |
| DHARIA, PRABODH M | | | | |
| ART UNIT | | | PAPER NUMBER | |
| 2673 | | | | |

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,197

Applicant(s)

JENSON ET AL.

Examiner

Prabodh M. Dharia

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-21 is/are pending in the application.
4a) Of the above claim(s) 18 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 and 19-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Application/Control Number: 10/622,197

Art Unit: 2673

1. **Status:** Receipt is acknowledged of papers submitted on December 27, 2005 under appeal brief, which have been placed of record in the file. Claims 1-17 and 19-21 are pending in this action. Claim 18 is cancelled

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,7,9-12,15-17,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Donath et al. (US 2004/0066376 A1).

Regarding Claim 1, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light, the second portion of the light therefore having low efficiency for reflection towards the viewer from optical boundaries encountered by the second portion of the light following rotation of the plane of polarization by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

Application/Control Number: 10/622,197

Art Unit: 2673

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Domnath et al. teaches a visual display system (page 1, paragraph 8, Lines 1-3) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 3, paragraph 35, page 4, paragraph 44) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 4, paragraph 42-44, figure 3A, 3B).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Domnath et al. in McDonald teaching for having a visual mobility assist device or display which provides a conformal, augmented display to assist a moving body.

Regarding Claim 2, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

Regarding Claim 7, McDonald teaches a head-up display, providing a primary virtual image of an automotive gauge with only attenuated ghost images (Col. 2, lines 65-68).

Regarding Claim 9, Domnath et al. teaches a see-through projection display; and a head-up display in a vehicle (page 4, paragraph 42-44, page 3, paragraph 35).

Application/Control Number: 10/622,197

Art Unit: 2673

Regarding Claim 10, McDonald teaches a relay optic that rotates the polarization of the reflected, first portion of the light (Col. 2, Line 23-64, Col. 3, Lines 5-25).

Regarding Claim 11, McDonald teaches a head-up display to allow a viewer to wear-polarized sunglasses (Col. 3, Line 55 to Col. 4, Line 5).

Regarding Claim 12, McDonald teaches the visual display system wherein the display light source is selected from among: a display projection system utilizing a light guide, diffuser, liquid crystal display, and transmitting window; a vacuum fluorescent display; a laser or light emitting diode combined with a scanning mirror; a laser or light emitting diode combined with a number of lasers, LEDs, and scanning mirrors; a laser or LED combined with scanning lenses; and an array of LEDs that together compose a graphical or textual display (Col. 4, Lines 6-58).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Domnath et al. teaches a visual display system (page 1, paragraph 8, Lines 1-3) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 3, paragraph 35, page 4, paragraph 44) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 4, paragraph 42-44, figure 3A, 3B).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Domnath et al. in McDonald teaching for having a visual mobility assist device or display which provides a conformal, augmented display to assist a moving body..

Regarding Claim 15, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light through the windshield, the second portion of the light therefore having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the light following rotation of the plane of polarization of the display light and transmission by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Domnath et al. teaches a visual display system (page 1, paragraph 8, Lines 1-3) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 3, paragraph 35, page 4, paragraph 44) comprising:

Application/Control Number: 10/622,197

Art Unit: 2673

a combiner positioned between the occupant (viewer) and the windshield (page 4, paragraph 42-44, figure 3A, 3B).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Domnath et al. in McDonald teaching for having a visual mobility assist device or display which provides a conformal, augmented display to assist a moving body.

Regarding Claim 16, McDonald teaches provide a head-up display (Col. 1, lines 8-11).

Regarding Claim 17, Donath et al. recite the display projection system (page 3, paragraphs 35).

Regarding Claim 21, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light through the windshield, the second portion of the light therefore having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the light following rotation of the plane of polarization of the display light and transmission by the combiner (Col. 2, Line 23-64, Col. 3,

Application/Control Number: 10/622,197

Art Unit: 2673

Lines 5-25) and a relay optic that rotates the polarization of the reflected, first portion of the display light to direct p-polarized light to the vehicle occupant (Col. 3, Lines 5-25).

However, McDonald fail to recite a visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system comprising: a combiner positioned between the occupant (viewer) and the windshield.

However, Donath et al. teaches a visual display system (page 1, paragraph 8, Lines 1-3) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 3, paragraph 35, page 4, paragraph 44) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 4, paragraph 42-44, figure 3A, 3B).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Donath et al. in McDonald teaching for having a visual mobility assist device or display which provides a conformal, augmented display to assist a moving body.

4. Claims 3,4,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Donath et al. (US 2004/0066376 A1) as applied to claims 1,2,7,9-12,15-71,21 above further in view of Weber et al. (US 2004/0135742 A1).

Regarding Claim 3, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

Application/Control Number: 10/622,197

Art Unit: 2673

However, McDonald modified by Donath et al. fails to teach the combiner consists of a birefringent material.

However, Weber et al. teaches the combiner consists of a birefringent material (page 4, paragraphs 41,42).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Weber et al. in McDonald modified by Donath et al. teaching for having a high contrast image display that uses polarizing beam splitter to function to input beam and fold light path.

Regarding Claim 4, Weber et al. teaches the combiner is coated with a birefringent film (page 5, paragraphs 41,42).

Regarding Claim 8, Weber et al. a head-up display, providing a primary virtual image of an automotive gauge with no ghost images (page 3, paragraph 30, page 1, paragraph 6).

5. Claims 5,6,10,13,14,19,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald (5,212,471) in view of Donath et al. (US 2004/0066376 A1) as applied to claims 1,2,7,9-12,15-71,21 above further in view of Sebastiano et al. (5,143,796).

Regarding Claim 5, McDonald teaches the light is s-polarized, and the polarization of the light is rotated by the combiner to produce p-polarized light (Col. 3, Lines 5-25).

Application/Control Number: 10/622,197

Art Unit: 2673

However, McDonald modified by Donath et al. fails to teach the combiner is coated with a dielectric film.

However, Sebastiano et al. teaches the combiner is coated with a dielectric film (Col. 4, Lines 1-3).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Sebastiano et al. in McDonald modified by Donath et al. teaching for having a high contrast image display that holographic combiner and achieves desired reflective and transmissive characteristics.

Regarding Claim 6, Sebastiano et al. teaches the combiner is coated with a metallic film (Col. 4, Lines 5-16).

Regarding Claim 13, McDonald teaches a visual display system (Col. 1, Lines 13-19) comprising: a display light source that transmits an image in at least partially polarized light (Col. 1, Lines 40-49); and a combiner that transmits light from a field of vision behind the combiner to a viewer in front of the combiner, the combiner reflecting a first portion of the light to superimpose the image as a virtual image within the transmitted field of vision, rotating the polarization of a second portion of the light (Col. 1, Lines 40-56, Col. 3, Lines 5-22), and transmitting the second portion of the light, the second portion of the light therefore having low efficiency for reflection towards the viewer from optical boundaries encountered by the second portion of the light following rotation of the plane of polarization by the combiner (Col. 2, Line 23-64, Col. 3, Lines 5-25).

Application/Control Number: 10/622,197

Art Unit: 2673

Domnath et al. teaches a visual display system (page 1, paragraph 8, Lines 1-3) that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield the visual display system (page 3, paragraph 35, page 4, paragraph 44) comprising: a combiner positioned between the occupant (viewer) and the windshield (page 4, paragraph 42-44, figure 3A,3B).

However, McDonald modified by Domnath et al. fails to teach the combiner is coated with a metallic film.

However, Sebastiano et al. teaches the combiner is coated with a metallic film (Col. 4, Lines 5-16).

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Sebastiano et al. in McDonald modified by Domnath et al. teaching for having a high contrast image display that holographic combiner and achieves desired reflective and transmissive characteristics.

Regarding Claim 14, McDonald teaches a head-up display to allow a viewer to wear p-polarized sunglasses (Col. 3, Line 55 to Col. 4, Line 5).

Regarding Claim 19, Sebastiano et al. teaches the combiner is coated with a both metallic and dielectric film (Col. 4, Lines 32-40).

Regarding Claim 20, Sebastiano et al. teaches the combiner is applied to inner surface of the windshield (Col. 4, Lines 47-51).

Application/Control Number: 10/622,197

Art Unit: 2673

Response to Arguments

6. Applicant's arguments, see appeal brief, filed 12-27-2005, with respect to the rejection(s) of claim(s) 1,13,15,21 under Final Rejection mailed on 06-23-2005 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Donath et al. (US 2004/0066376 A1).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Donath et al. (3,816,005) Mobility Assist Device.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

9. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/622,197

Art Unit: 2673

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

February 06, 2006

A handwritten signature in black ink, appearing to read 'Vijay Shankar', written in a cursive style.

**VIJAY SHANKAR
PRIMARY EXAMINER**